

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 12006 - PCT - 230	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/IB 03/04131	International filing date (day/month/year) 24/09/2003	(Earliest) Priority Date (day/month/year) 25/09/2002
Applicant  NIPPON SANSO CORPORATION		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 5 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☒ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

APPARATUS AND METHOD FOR FILLING A FUEL TANK WITH A COMPRESSED GAS LIKE HYDROGEN  
BY CONTROLLING FLOW AND TEMPERATURE

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

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☐ None of the figures.

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 03/04131

**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC 7 F17C5/00 F17C13/02

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
 IPC 7 F17C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 341 620 B1 (MUTTER HEINZ) 29 January 2002 (2002-01-29) the whole document -----	1-3

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

4 March 2004

Date of mailing of the international search report

05.07.04

Name and mailing address of the ISA

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Authorized officer

Nicol, B

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB 03/04131

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6341620	B1	29-01-2002	
		AU 772209 B2	22-04-2004
		AU 4090000 A	21-12-2000
		CA 2305918 A1	18-12-2000
		EP 1063466 A1	27-12-2000
		JP 2001012694 A	16-01-2001
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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/IB 03/04131

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-3

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-3

A fuel filling apparatus, comprising an overfilling protective valve, arranged in a fuel gas supply path for supplying a fuel gas to an automobile, the overfilling protective valve further comprising:

- a fuel gas path;
- a valve unit, for opening and closing the fuel gas path by a valve body;
- a valve body displacement means, for displacing the valve body according to a filling pressure of the fuel gas;
- and a temperature modulating unit, for modulating a temperature of the valve body displacement means.

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2. claims: 4-6

A fuel filling apparatus, for filling a hydrogen gas into a fuel tank of an automobile that uses the hydrogen gas as a fuel, the fuel filling apparatus comprising a heat exchanger.

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3. claims: 7-10

A fuel filling apparatus and associated method, for filling a hydrogen gas into a fuel tank of an automobile that uses the hydrogen gas as a fuel, the fuel filling apparatus comprising:

- a flow modulating valve, for modulating a supply amount of a hydrogen gas;
- and a cooling means, for cooling the hydrogen gas passing through the flow modulating valve.

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